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BAY-DELTA ADVISORY COUNCIL'S ASSURANCES WORK GROUP

The CALFED Bay Delta Program is developing a long-term comprehensive plan to restore the ecological health and improve water management for beneficial uses of the Bay-Delta system. Once the CALFED agencies select a long-term solution, they will need to assure that the solution will be implemented and operated as agreed. In addition, if a key component of the solution cannot be implemented, the agencies need to design a process to address this uncertainty.

This paper describes a case study and offers one way to provide assurances. It is not a final recommendation, rather, it illustrates one combination of tools to assure the implementation of the case study. This illustration has been prepared in response to discussion among members of the Bay Delta Advisory Council (BDAC) Assurances Work Group that a more detailed example of an assurance package would help focus their discussions in developing assurances.

The case study described herein is based on Program Alternative 3(b). This alternative was selected because it includes new storage and conveyance facilities, which present complex assurance issues. Again, the use of this alternative as a case study does not represent any decision or recommendation by the CALFED agencies concerning selection of a preferred alternative or the outcome of the NEPA/CEQA process.

The draft assurances proposal consists of a management structure for the ecosystem restoration program, agreements, rules and regulations, state and federal legislation, and physical limits on the new isolated conveyance facility. Although the assurances proposal is intended to assure the case studies, the actual assurance package developed over the course of the next several months will likely contain a number of these elements.

The tools selected are intended to assure that benefits to the ecosystem program will not come at the expense of water supply, and that improvements in water supply reliability will be accomplished in ways that complement and enhance ecosystem restoration efforts. The proposal is designed to assure that all programs will proceed together. Determining the sequence in which acts are implemented is another important aspect of the assurance proposal. Figure 1 presents an illustration of the sequence of actions to be implemented for the proposal.

This paper is organized as follows: Part I describes the case study - a hypothetical preferred alternative based on the CALFED Bay-Delta Alternative 3(b); Part II describes the draft assurance proposed for the case study and Part III includes a refined set of guidelines.

I. CASE STUDY

The case study is a summary of the actions and programs that might be included in a CALFED Bay-Delta Program alternative. The case is similar to Alternative 3.b and has been developed over the course of several months of discussions within the Assurances Workgroup. The purpose of the case study is to provide a foundation for analysis of assurance alternatives. The draft assurances proposal in Section II is based upon this case study. Note, however, that the case study cannot be developed entirely independent of the assurances package.

The case study includes: **Ecosystem Restoration**: (1) a major habitat restoration program in and above the Delta (including both specific actions and an adaptive management program); (2) changes in flow and diversion timing patterns (made possible by new storage, efficiency improvements, water purchases, and the construction of multiple export intakes to benefit fisheries); (3) reductions in stressors (e.g., screens for diversions); (4) increased flexibility in the location of diversions (made possible through the construction of multiple export intakes); and (5) improvements in water quality.

Water Supply Reliability: (1) new storage elements managed partly for increased out-of-stream supply; (2) construction of a dual Delta transfer facility to allow more efficient and more frequent movement of water across the Delta; and (3) water efficiency and water market elements.

Water Quality: (1) specific actions and programs designed to improve water quality in the tributaries of the Delta; and (2) the construction of a dual transfer facility to improve export water quality.

System Vulnerability: (1) programs to protect and upgrade existing levees; and (2) a program to upgrade emergency response to levee failure.

The case study incorporates two provisions specifically designed to make the assurance problem more manageable. The first provision is the adaptive management program for ecosystem restoration. Considering that there is considerable uncertainty in our ability to predict which restoration activities will be most beneficial, the inclusion of a high quality adaptive management program will significantly increase the likelihood that the solution will achieve meaningful restoration at a reasonable cost. The second provision is the selection of a dual transfer facility with limited capacity in the isolated component to help reduce concerns that export interests will seek to reduce expenditures on levee, water quality, and environmental protection in the future, particularly when the isolated component is too small to carry projected levels of exports.

Case Study: Action Elements

1. **Ecosystem Restoration** (Represents all restoration activity, including Central Valley Project Improvement Act (CVPIA), etc.)
   a. Increase land habitat -- purchase, easements, or voluntary cooperation with restoration.
      i. 75,000 to 120,000 acres of freshwater and brackish tidal marsh and shallow water habitat.
      ii. 100 to 200 miles of riparian woodland and shaded riverine habitat.
      iii. 40,000 to 100,000 tons of gravel replacement annually to enhance spawning.
      iv. Floodways on the San Joaquin and Cosumnes Rivers.
      v. Convert leveed lands to tidal marsh/ floodplain.
      vi. Meander belt on the Sacramento River -- acquire 8-12,000 acres.
      vii. Restore and manage an additional 20,000 to 30,000 acres of seasonal wetland habitat throughout all Delta ecological units.
      viii. Actively protect and improve existing channel islands in the Delta.
   b. Modify flow patterns -- 300,000 to 500,000 acre-feet of increased critical-period flows to restore physical process and ecological functions. Includes:
      i. 10 day March pulse from 20 to 40 kcfs on the Sacramento River.
      ii. 10 day April-May pulse from 20 kcfs to 40 kcfs on the San Joaquin River.
      iii. Fall or early winter Delta outflow pulse.
      iv. Late winter or early spring flow event below Keswick at 5 - 20 kcfs.
      v. Base Sacramento flows in the fall at 6 - 8 kcfs.
      vi. 13 kcfs in May on the Sacramento below Sacramento in all but critical years.
      vii. Positive average net QWEST from February through April
      viii. 2.4 to 5.2 kcfs minimum Vernalis flow from April 1 to May 15, if Delta smelt are present (in addition to existing April-May pulse).
      ix. Change Delta channel hydraulics with levee setbacks or channel constrictions.
      x. Close Delta Cross Channel when opportunities allow.
      xi. Operate a fully functional barrier at the head of Old River.
      xii. Numerous flow pattern increases on tributary rivers and creeks.
   c. Reduce stressors
      i. New or improved fish screens at selected diversions (approximately half of existing Bay-Delta system diversions).
      ii. New fish ladders or removal of barriers that limit access to habitat.
      iii. Management of water quality that degrades ecosystem health.
         (1) Reduce inputs of herbicides, pesticides, fumigants, etc. by modifying land management practices and chemical dependancy on 50,000 acres of urban and agricultural lands that drain untreated into Delta channels and sloughs.
         (2) Reduce hydrocarbons, etc., from oil refinery releases.
         (3) Control contaminant input to the Sacramento River by constructing and operating stormwater treatment facilities and implementing industrial BMP for stormwater and erosion control.
         (4) Improve temperature patterns in and above the Delta.

d. Create a mechanism designed to meet long-term goals and objectives through restoration activities, while allowing discretion as to the means -- adaptive management.
   i. Establish relatively permanent goals and objectives.
   ii. Establish indicators and initial targets.
   iii. Monitor implementation using indicators.
   iv. Evaluate monitoring results.
   v. Implement in phases. Based upon monitoring results, refine targets and implementation methods.

e. Specific programs
   i. Cooperative program to reduce upstream diversions during periods when juvenile salmon are present in significant numbers.
   ii. Management of undesirable introduced species that interfere with native or economically important species.
      (1) Invasive plant eradication programs.
      (2) Fund inspection staff for ballast regulation.
   iii. Develop cooperative program to remedy heavy metal pollution from Iron Mountain Mine to meet Basin Plan standards and implement reliable and proven remedies that ensure continued treatment and control of heavy metal waste prior to discharge to the Sacramento River.
   iv. Boat wake erosion. Establish and enforce no wake zones and no motorized boating zones in various sensitive areas.
   v. Reduce illegal harvest of anadromous fish and waterfowl by providing funding to enforcement agencies and providing rewards for arrest and conviction of poachers.
   vi. Manage legal harvest by shifting some harvest to hatchery stocks or reducing harvest of wild stocks until natural populations recover.
   vii. Mark all hatchery salmon and steelhead to allow selective harvest.
   viii. Encourage regulatory agencies to change fishing regulations to further reduce legal harvest (at least in the short term).
   ix. Augment salmon production with hatchery produced smolts during short term rebuilding phase, if other measures found inadequate to provide recovery of populations.
   x. Implement upstream land use plans that:
      (1) establish, restore and maintain riparian habitats and create buffer zones between the creek and developments or other land use activities such as livestock grazing.
      (2) reduce upstream siltation.
      (3) improve fencing, grazing, grading, and road building practices.

2. **Water Quality**. Includes requirements and programs from other agencies, e.g., the Regional Water Quality Control Board.

a. Reduce toxic effects of cadmium, copper, and zinc loadings to the Delta and its tributaries by source control or treatment of mine drainage at inactive and abandoned mine sites.
b. Reduce toxic effects of mercury loadings to the Delta and its tributaries by source control and/or treatment of mine drainage at inactive and abandoned mine sites.
c. Reduce toxic effects of copper, zinc and cadmium loadings to the Delta and its tributaries from urban and industrial runoff through enforcement of existing source control regulations and incentives.
d. Reduce toxicity from the pesticides chlorpyrifos and diazinon in the Delta and tributaries through source control of urban and industrial runoff.
e. Reduce the toxic effects of nutrient loadings and consequently, oxygen depletion in the Delta and its tributaries through source control of urban and industrial runoff.
f. Reduce the impacts of sediment loading, and subsequent turbidity to the ecosystem of the Delta and its tributaries and to urban drinking water sources in the Delta, through source control of urban and industrial runoff.
g. Reduce the impact of domestic wastes and hence pathogens to Delta urban drinking water supplies and recreational water uses, from boat discharges within the Delta and Delta tributaries.
h. Reduce the toxic impacts of selenium loadings to the Delta through source control and treatment of industrial discharges.
i. Reduce salinity impacts to Delta urban and agricultural source water quality through source control and treatment of agricultural surface and sub-surface drainage in the San Joaquin River watershed.
j. Reduce salinity for agricultural source water in the South Delta through improved outflow patterns and water circulation in the Delta.
k. Reduce the toxic effects of carbofuran, chlorpyrifos, and diazinon in the Delta and its tributaries through source control of agricultural drainage and Delta island drainage.
l. Reduce the toxic effects of ammonia entering the Delta and its tributaries through source control of agricultural surface drainage.
m. Reduce the toxic effects of ammonia entering the Delta and its tributaries from waste water treatment plant discharges and through improved treatment.
n. Improve drinking water quality (including reduction in formation of disinfection byproducts) through treatment to reduce concentrations of total organic carbon, pathogens, turbidity, and bromides.
o. Identify and implement action to address potential toxicity to water and sediment within the Delta and its tributaries.
    i. Toxicity testing/ evaluation.
    ii. Coordinate with other monitoring programs.
p. Reduce the concentration of salinity entering the Delta and its tributaries during low flow periods.
    i. Dilution water.
    ii. Incentives for reservoir reoperation.
    iii. Seasonal recharge.

3. **Water Use Efficiency**
   a. Standardized rules for water transfers.
      i. Define transferable water.
      ii. Mitigate local third party and environmental impacts.
      iii. Streamline approval process.
   b. Water Reclamation
      i. Feasibility plans by water agencies.
      ii. Certification of feasibility plans by DWR.
      iii. Provide technical and planning assistance.
      iv. Funding assistance to assure that lack of financing ability does not impede implementation of cost-effective measures.
   c. Urban Water Conservation
      i. Implement BMPs at levels established by the California Urban Water Conservation Council (CUWCC).
      ii. Provide technical and planning assistance.
      iii. Funding assistance to assure that lack of financing ability does not impede implementation of cost-effective measures.
      iv. Reporting.
      v. Certification and enforcement.
   d. Agricultural Water Efficiency
      i. Local water agencies implement Efficient Water Management Practices (EWMPs) at levels established by the agricultural efficiency council.
      ii. Provide technical and planning assistance.
      iii. Funding assistance to assure that lack of financing ability does not impede implementation of cost-effective measures.
      iv. Incentives to agriculture to align agricultural management with CALFED objectives.
   e. Refuge Efficiency.
      i. Identify BMPs for refuges.
      ii. Water management planning process.

4. **Levee Integrity**
   a. PL-99 Funding Program. Provide funding to local agencies for improvements to the PL-99 standard.
   b. Implement special levee stabilization projects according to priorities based on island importance relative to water quality, ag production, life and personal property, recreation, cultural resources, ecosystem, local and statewide infrastructure, and impacts to adjacent islands.
   c. Control and reverse effects of subsidence through shallow flooding of between 30 - 60,000 acres of central and western Delta farmland.
   d. Incorporate habitat improvements from ERPP into levee stabilization projects.
   e. Beneficial use of dredge spoils.
      i. Investigate feasibility of using Bay spoils.
      ii. Investigate sediment trapping in Delta.

f. Establish and implement emergency response program.
   i. Create centralized coordination center for flood emergency actions.
   ii. Establish levee qualifying standards, a multi-agency response team, an emergency fund, and stockpile flood fight materials.
   iii. Ensure adequate marine equipment is available to respond to a seismic event that may result in many Delta islands being flooded.
g. Incorporate seismic risk retrofit elements into levee stabilization program.
h. Restore and rehabilitate in-channel islands.
i. Redirect recreation opportunities from levees to better protect eco restoration, water quality, levee integrity, and water supply reliability elements.
j. Incorporate flood conveyance alternatives to safely pass inflow into the Delta from the Cosumnes, Sacramento, San Joaquin rivers and other Delta tributaries. Includes levee modifications, setback levees, and conversion of islands to bypass systems.
k. Establish and implement long-term maintenance and subsidence management plan
l. Seepage flood remediation program (mitigation for isolated system).

5. **Conveyance** -- Dual conveyance facility. 5,000 cfs capacity for isolated portion
   a. Screened intake.
   b. Operations.
      i. SWRCB standards similar to existing standards with following changes:
         (1) Standards are written so as to incorporate real time hydrological conditions -- i.e., a shift away from existing year type classifications (the X2 standard is an example of how this can be done), but will generate approximately the same average flow and diversion levels as current standards
         (2) Existing standards, which might be relaxable in the future if the ecosystem restoration program is successful, are not included as regulatory standards, but are transferred to the ecosystem entity as property rights. Thus:
            (a) dry year X2 relaxations are allowed by the standards, but existing X2 standards may be required by the ecosystem restoration entity at its discretion.
            (b) existing ESA operational requirements become property rights of the ecosystem entity.
         (3) Standards allow for greater flexibility in operations, if project operators and ecosystem entity can agree on changes.
         (4) Diversions into the isolated facility are included within the export inflow ratio calculation.
         (5) Minimum pumping in the south Delta is 0 cfs from April - June and 1 kcfs during other months.
      ii. Ecosystem entity
         (1) Some existing regulations converted to property rights as described above.
         (2) A right to some capacity in the isolated system.
         (3) CVPIA flows converted into ecosystem property rights.
         (4) Real time operations to protect biology are at the instigation of the ecosystem entity. Either use flexible SWRCB standards (e.g., trade reduced pumping

now for increased pumping later), or changes based upon market purchases or exchanges (e.g., trade south of Delta storage for reduced exports during period of high entrainment.)

(5) The ecosystem entity may also acquire additional water rights through purchase or through water development (e.g., the entity will control a portion of new storage).

iii. Through Delta portion.
   (1) Screened intake on Sacramento River.
   (2) Operational rules as with isolated portion.

iv. Coordinated operations of the two facilities.
   (1) South Delta pumping increases as required to meet south Delta salinity standards.
   (2) Given, that isolated facility diversions will be curtailed occasionally for biological reasons for because insufficient water is available, the facility will be kept as full as possible at all times.
   (3) Water diverted through the isolated facility will be channeled to urban areas as much as possible. For example, the water will be managed so as to minimize blending with water diverted from the Delta.

6. Storage

a. Facilities/ Filling and discharge assumptions.
   i. 3 million af surface storage upstream of the Delta on Sacramento River tributaries. 5,000 cfs maximum filling and discharge capacity.
   ii. 500 thousand af surface storage upstream of the Delta on San Joaquin tributaries. 5,000 cfs maximum filling and discharge capacity. Operations based upon "fill first, pump later".
   iii. 2 million af surface storage off-aqueduct (South of Delta). 3,500 cfs maximum filling and discharge capacity.
   iv. 200 thousand af in-Delta storage. 5 thousand cfs maximum filling and discharge capacity.
   v. 500 thousand af groundwater storage in the Sacramento Valley. 500 cfs maximum filling and discharge capacity.
   vi. 500 thousand af groundwater storage in the San Joaquin Valley. 500 cfs maximum filling and discharge capacity.

b. Control over storage -- 1/3 urban, 1/3 agricultural, 1/3 environmental.

c. General operational philosophy.
   i. Fill during periods of high flow.
   ii. Discharge during periods when released water has high value for the environment and/or water users -- e.g., the spring, dry years.

d. Coordinated operations -- priorities for filling and discharge.
   i. tributary groundwater storage facilities. First priority for filling, last priority for discharge (only during dry and critical years).
   ii. Aqueduct groundwater storage. Second priority for filling and fourth priority for discharge.

iii. Aqueduct surface storage. Third priority for filling, third priority for discharge.
iv. Tributary surface storage. Fourth priority for filling, second priority for discharge.
v. Delta storage, fifth priority for filling, first priority for discharge.

e. Constraints on diversions.
   i. Diversions constrained by need to meet instream flow requirements and environmental flow rights.
   ii. No diversions into new Sacramento tributary storage until a 60 kcfs mean daily flow event has occurred at Chico Landing.
   iii. Diversions to Delta island storage considered an export for purposes of compliance.

f. Water user/ecosystem entity interaction.
   i. Water users and the environment will have specified rights to storage capacity, diversion capacity, and discharge capacity. They may make trades or market exchanges of these rights. For example, the ecosystem entity might offer some of its diversion capacity at one time in order to get reduced diversions at another time.

7. Funding

a. Detailed allocation of funding sources. All of the following elements used:
   i. Diversion fees.
   ii. GO bonds (for ecosystem restoration).
   iii. Revenue bonds (for facilities).
   iv. Federal appropriations.
   v. Existing funding sources.

II. DRAFT ASSURANCES PROPOSAL

This section describes the foundation of the assurance package and specific assurances for each component. However, assurances for one component often overlap assurances for another component of the case study. Assurances in some cases are designed to maintain and support the linkage between two or more components. Note that this draft proposal does not deal with every implementation/ assurance issue raised by the case study in Section I. More detail will be provided in later drafts.

A. Principles agreement - The foundation of the assurances package is a broad agreement on principles which would be signed by all CALFED agencies and participating stakeholder groups, similar to the December, 1994 Bay Delta Accord. This principles agreement will be signed at or about the time of the adoption of the final EIR/S. After its formation, the new ecosystem management entity (discussed in more detail in the next section) will also sign this agreement.

This agreement will provide the blueprint for the phased implementation of the Program and will address a number of key issue areas, either by agreement therein or by incorporation of another document. Most of the issues addressed in the Principles

Agreement will require a more specific document to describe the details of the commitment and assurance on each specific issue. Some of the issues addressed or referenced in the principles agreement are:

1. Support for the preferred alternative for the long term Bay Delta Program, including agreement on the facilities to be included in the Program and the allocation of water from new storage facilities;

2. The formation, structure, governance, purposes and powers of the new ecosystem management entity;

3. The process for revisions to the Water Quality Control Plan (WQCP), Environmental Protection Agency (EPA) approval of the revised WQCP, amendments to the Biological Opinions (BO's) for Winter Run Salmon and Delta Smelt, changes to the Central Valley Project (CVP) and State Water Project (SWP) water rights, and other necessary permits, including expedited permits where appropriate;

4. Operating rules and criteria for the new CALFED Bay-Delta Program's storage and conveyance facilities and any necessary changes to the operating rules and criteria for existing CVP and SWP facilities;

5. Fundamental principles of adaptive management for the ecosystem restoration component, including the goals and objectives and performance measures for the ecosystem restoration component;

6. Support for the Bay Delta Programmatic Habitat Conservation Plan (HCP);

7. Indemnity/insurance or regulatory certainty to be provided to participating water users;

8. Funding, including revenue sources and cost allocations;

9. Response to contingencies and failures of conditions, remedies, and a dispute resolution process;

10. Linkage and phasing of components;

11. Monitoring and reporting;

12. Proposed state legislation;

13. Proposed federal legislation.

B. Ecosystem Restoration Component

1. **Management** - The major feature of assurances for the implementation of the Ecosystem Restoration Program Plan (ERPP) will be a new management entity, the Delta Ecosystem Restoration Authority (DERA). DERA will be a new public agency created by state and federal legislation.

   DERA will be governed by a 15 person Board of Directors, jointly appointed by the Governor and Secretary of the Interior. Five Board members will represent federal CALFED agencies, five members will represent state CALFED agencies, and five will represent the public. Public members will be appointed according to broad constituencies, with one member representing Bay area environmental organizations, one member from the Sacramento Valley, one from the San Joaquin Valley, one from the legal Delta, and one representing urban water agencies.

   The Board will appoint an Executive Director, who will be authorized to hire a staff adequate to carry out the program. The staff will include biologists, engineers and other specialists with technical skills and practical experience.

   The primary mission of DERA will be the implementation of the ERPP. This agency will have all the powers necessary to accomplish its mission. It will be authorized to acquire land by lease or purchase, water, water rights and other property by market transaction. DERA may also dispose of various forms of property. It will have the authority to provide financial incentives to local water agencies for changes in water management practices or for local restoration projects. It will not be a regulatory body, but it will have the power of eminent domain.

   All state and federal restoration funds, including the Central Valley Project Improvement Act (CVPIA) Restoration Fund, will be channeled through DERA. DERA will prepare an annual budget and establish funding priorities for ecosystem restoration actions and projects.

   Management of the 800,000 acre feet of CVPIA b(2) water will be assigned to DERA. DERA will closely coordinate with USFWS on the implementation of the Anadromous Fish Restoration Program (AFRP). After its formation DERA will assume the obligations of, and become the permit holder under, the Bay Delta Programmatic HCP.

   Some flows which are currently required by regulation will be converted into water rights under the control of DERA (See Section II.5 for more detail). Also, DERA will receive rights to 1/3 of new storage and rights to some portion of new conveyance capacity (see Section I.5 and I.6).

DERA will act as lead agency for CEQA/NEPA compliance and will hold the 404 permit and other permits necessary to implement the ERPP, whether programmatic or project/site specific.

DERA will conduct or coordinate necessary monitoring, data collection and analysis to measure performance of the program, and will issue periodic reports to the CALFED agencies and the public on the status of the program.

2. **Revisions to the May, 1995 Bay Delta Water Quality Control Plan (WQCP)** - Environmental water quality and outflow requirements will be assured by a revised WQCP adopted by the State Water Resources Control Board (SWRCB). The WQCP will include operational rules for the existing facilities which will control until new facilities are on line, at which time a new set of operational rules will apply to both new and existing CVP and SWP facilities. The Principles Agreement will include or incorporate by reference a specific agreement on recommendations by the CALFED agencies and participating stakeholders on revisions to the WQCP, and on the process by which these recommendations will be submitted to the SWRCB. These recommendations will reflect the changes in water quality and outflow requirements in the Delta as a result of implementation of ERPP and the increased operational flexibility provided by an isolated conveyance facility.

3. **Revisions to CVP and SWP water rights** - Implementation of the ERPP and construction and operation of new facilities will eventually require some changes in the permits and licenses of the CVP and SWP. The Principles Agreement will include or incorporate by reference a specific agreement that will describe the process by which those changes will be determined and how any necessary changes to the Coordinated Operating Agreement (COA) will be made.

4. **Revisions to other water rights** - Implementation of the ERPP and construction and operation of new facilities will result in changes to the WQCP. This in turn may require that other permits and licenses for water diversions be amended. The Principles Agreement will include a specific agreement on how those changes will be determined.

5. **Revisions to waste discharge regulations** - DERA will have the authority to provide financial incentives for reduction of waste water discharges in waters tributary to the Delta and to broker market transactions in transferable discharge credits. This will require changes in the state water quality regulations on Waste Discharge Requirements (WDR's). The Principles Agreement will include or refer to a specific agreement which will describe the process by which recommendations for changes to those regulations will be submitted to the regional and State Boards.

6. **Bonds to provide funding** - The Principles Agreement will include agreements on the amount of funding for the ERPP to be provided by bonds, the type of bonds to be used, how the bonds will be approved and issued, how the bonds will be repaid, what projects will be funded by these bonds, and the timing for the bond issuance.

7. **Water user fees** - The Principles Agreement will include a specific agreement on the amount of funding for ERPP to be provided by water user fees, how the fees will be collected and by whom, what projects will be funded by the water user fees; and the timing and duration of the collection of such fees. This will include an agreement on how current payments by water users for environmental mitigation or enhancement programs will be credited.

   Mandatory water user fees (adjusted for credits) will be imposed on all water users meeting agreed upon criteria. These fees will be levied and collected by the State Board pursuant to their water rights authority and will be used to repay revenue bonds issued for ERPP operations. In addition, voluntary water user fees will be paid by those water users who contract with DERA in order to (a) obtain any new water supply benefit from the CALFED program, including use of or access to new facilities; and (b) obtain the benefit of the "safe harbor" and "no surprises" indemnity provided by the HCP. These water user fees will be phased in and will increase when new facilities come on line.

   The mandatory water user fees will be primarily used for bond repayment and for annual operating expenses of the ERPP. The voluntary water user fees imposed and collected by DERA pursuant to contracts with participating water users will be used to create a reserve fund for the purchase of supplemental water or to take other actions necessary to provide the "safe harbor" and "no surprises" protection of the HCP.

8. **State and federal appropriations to provide funding** - The Principles Agreement will include an agreement and proposed legislation on the amount of federal and state (non-reimbursable) funds which will be sought for the ERPP and what such funds will be used for. Generally, appropriated funds will be used as an endowment of the ecosystem restoration program, i.e., for "up front" capital funding for projects such as land and water rights acquisition or purchase water transfer options. This agreement will also describe what happens if such funding cannot be obtained through the appropriation process.

9. **Funding linkage** - Long term operational funding for the ecosystem restoration program will be linked to the completion of the storage and conveyance facilities and/or future regulatory stability. The funding instruments, legislation and agreements will provide that if facilities cannot be built or operated as agreed, water user fees and bond funding for restoration funding will be reduced or ended. In other words, continued funding for ecosystem restoration, whether by bonds, water user fees, or other sources, will be dependent on construction and operation of new facilities.

10. **Phasing and linkage** - The Principles Agreement will describe the timing of Phase III ERPP projects in relation to the construction and operation of new facilities. It will describe the linkage between the funding and implementation of Phase III ERPP projects and the construction and operation of new facilities.

11. **Physical limits on new facilities** - The physical size of the isolated conveyance facility will provide additional assurances for water quality and outflow conditions in the Delta. An isolated facility of 5000 cfs will be insufficient to meet export demands most of the time and will ensure that export water will continue to move through, rather than around, the Delta, thereby maintaining the Delta as a "common pool".

12. **State legislation** - State legislation will be proposed to authorize the formation of DERA and describe its governance structure, to authorize appoint of Board members by the Governor (jointly with the Secretary of Interior), and to define its powers and purposes.

    State legislation will also be proposed to provide that:

    a. New facilities may not be operated at a higher capacity than specified in the CALFED Program or in violation of SWRCB standards.

    b. Water supply project operators will be required to provide storage and conveyance capacity for environmental enhancement water at a reasonable cost, if space is available. The water supply projects will be required to bypass flows acquired for environmental purposes.

    c. DERA will be authorized to purchase and schedule enhanced flows in addition to all regulatory requirements, by acquisition of supplemental water through transfers or by reducing export pumping rates below permitted levels by purchase of replacement water or demand reduction in the export service areas.

    d. Permitting, construction and operation of new facilities will be linked to funding and implementation of the ecosystem restoration. Legislation will provide for a series of checkpoints at which findings will be made by CALFED that both programs (ecosystem restoration and water supply) were moving ahead in more or less equitable increments.

13. **Federal legislation** - Federal legislation will be proposed to authorize the formation of DERA, to describe its governance and management structure, to authorize the appointment of Board members (jointly with the Governor) and to define its powers and purposes. Federal legislation will also amend the Central Valley Project Improvement Act to assign the management of the 800,000 acre feet of fish and

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wildlife water and the Restoration Fund to DERA, and to provide for coordination of AFRP implementation with ERPP implementation.

C. Water Supply Reliability

1. **Management of new facilities** - The Principles Agreement will provide that new water supply storage and conveyance facilities will be jointly constructed, owned and operated by USBR and DWR. The Principles Agreement will include a number of specific agreements on permitting, funding, and operation of the new facilities, and provide for linkage of facilities construction and operation to ERPP implementation.

2. **Funding for new facilities** - The Principles Agreement will include a specific agreement that the construction of new facilities will be funded with state and federal appropriations. The portion of the new facilities which is dedicated to the ERPP will be paid for by the general public. That portion of the new facilities which is dedicated to consumptive water supply will be repaid by long term contracts with local water supply agencies, through the existing CVP or SWP contracting process. Contract repayment will include capital, interest, and operations and maintenance costs.

3. **Permit processing** - The Principles Agreement will include a specific agreement on the permitting process for the construction and operation of new facilities. This will include agreement on what permits will be required, both programmatic and project specific, the timelines for permit issuances, and agreement on default issuance of permits in the event of violation of the timeline.

4. **Construction scheduling and phasing** - The Principles Agreement will include a specific agreement on the schedule for construction of new facilities and the linkage between construction of new facilities and implementation of ERPP. Funding of ERPP through water user fees will be tied to facilities construction.

5. **Operating rules for existing facilities** - The Principles Agreement will include a specific agreement on how the operating rules and criteria for existing CVP and SWP facilities will be modified as ERPP and new facilities come on line.

6. **Operating rules for new facilities** - The Principles Agreement will include a specific agreement on the operating rules for the new facilities, including the allocation of capacity between environmental uses and consumptive uses.

7. **Multi species habitat conservation plan (HCP)** - The Principles Agreement will incorporate the signatories' agreement on the Bay Delta Programmatic HCP. After its formation, DERA will become assume the obligations of and become the permit holder for the HCP. Some of the key terms and provisions of the HCP are:

a. A description of the species covered - The Bay Delta HCP would cover all species affected or potentially affected by the implementation of the long term Bay-Delta Program.

b. A description of the activities covered by the HCP - This would include all actions of the long term Bay Delta program and any required mitigation actions.

c. A summary of Program phasing and monitoring requirements.

d. The term of the HCP - The term would be related to the time frame for the ecosystem restoration program; perhaps in the range of 20 to 30 years.

e. Incidental take permits - Permits would be issued for all species listed at the time of the HCP and the federal agencies would agree to issue incidental take permits for newly listed species, unless the agencies could demonstrate extraordinary circumstances.

f. Description of what constitutes extraordinary circumstances or the process for making that determination.

g. Description of the "no surprises" or "safe harbor" protection - The Bay Delta HCP would include provisions which would provide some degree of regulatory certainty and/or relief from liability for the permit holders and for water users and land owners entitled to the benefit of the permit.

h. Costs - Project operator and water user costs would be quantified and fixed. The HCP might also include a formula for cost increases, if necessary.

8. **Indemnity/insurance for water users** - The Principles Agreement will include specific agreement on linked assurances for ecosystem restoration and water supply reliability. These will be provided by a set of agreements or contracts, including the Bay Delta HCP, to provide phased or tiered levels of indemnity for water users who agree to pay water user fees for the implementation of the ERPP.

The first level of water supply protection is that if additional water is needed for ecosystem restoration, above the agreed upon baseline amount, DERA will reallocate some portion of the existing environmental water (i.e, the CVPIA b(2) water).

The second level is that if additional environmental water is needed, DERA may acquire water through voluntary water transfers from willing sellers.

The third level is that under extraordinary circumstances, which will be defined and agreed upon, DERA would recommend to the appropriate regulatory agency that

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additional water be acquired by the exercise of existing regulatory or legal mechanism, such as the Endangered Species Act (ESA), without compensation.

9. **Monitoring and reporting** - DWR and USBR will coordinate with DERA on monitoring the impact of facilities operations on various conditions in the Delta and will make periodic reports to CALFED and the public on the results.

10. **Dispute resolution** - The Principles Agreement will include a specific agreement on how disputes which may arise among agencies and/or stakeholders regarding facilities operations will be resolved.

11. **Revisions to WQCP** - The new facilities will be controlled by the revised Water Quality Control Plan (WQCP), which will incorporate a complete set of operational requirements.

12. **CVP and SWP water rights** - CVP and SWP will apply for water rights permits for the new facilities and existing permits will be revised to reflect the new facilities and the revised WQCP.

13. **Revisions to other water rights** - The Principles Agreement will describe or incorporate the specific agreement by which water rights holders other than the CVP and SWP will contribute water to meet the requirements of the WQCP.

14. **Regulations for water transfers** - The Principles Agreement will describe the proposed rules and regulations for water transfers to be recommended for adoption by the State Board.

15. **Regulations for conjunctive use programs** - The Principles Agreement will include a section on the conjunctive use and management of Sacramento Valley groundwater and provide proposed rules for groundwater based transfers.

16. **Bonds to provide funding** - The Principles Agreement will include a section on revenue bond funding of the construction of new facilities, including the amount of bonds, time of issuance, who issues them, and who will repay them.

17. **State and federal appropriations** - The Principles Agreement will describe the proposal for federal and state appropriations to fund the construction of that portion of the new CALFED facilities which are agreed to be nonreimbursable by water user.

18. **Water user fees for O&M of new facilities** - The Principles Agreement will describe the process by which water users will contract for any new water supply provided by CALFED facilities and for use of and access to CALFED facilities, including payment of operations and maintenance costs.

D. Water Quality

1. Generally, water quality elements and actions will be **implemented by the SWRCB, the Regional Boards and the Environmental Protection Agency (EPA).** In some instances, the ecosystem manager will provide funding for actions which have water quality benefits.

2. **The Principles Agreement** will include a section on water quality. This will refer to specific agreements on the use of new facilities and water quality objectives.

3. **Revisions to the WQCP** will provide assurances for protection of water quality for in Delta environmental and consumptive uses.

4. Revisions to waste discharge regulations to provide for t**ransferable discharge (pollution) credits** provide additional assurances, through financial incentives, that water quality objectives will be met.

5. **CVP and SWP water rights will be revised to** reflect revisions to the WQCP.

6. **Other water rights meeting agreed upon criteria will be revised** to meet the requirements of the WQCP.

7. **State legislation** will be proposed to provide funds and rules for land retirement program.

8. **State legislation will** be proposed to set water quality targets and provide for various regulatory enforcement mechanisms or incentive programs. It will also provide for "citizen suits" in the event of non-compliance with water quality objectives.

E. Water Use Efficiency

1. Most of **the implementation of the Efficient Water Use Component will be at the local agency level.** DWR and USBR will provide technical support and financial assistance for locally implemented water conservation and efficiency improvement programs.

2. **The Principles Agreement will include a general statement of agreement on water management and conservation efforts.**

3. **Assurance of compliance with urban and agricultural water conservation and efficiency programs is provided by a certification process administered by the urban and agricultural conservation/ efficiency councils.** Local agencies which do not have certified plans are not eligible for benefits from the CALFED Program. This

would include access to and use of new facilities, the water transfer market or water bank, or financial incentive and technical assistance programs.

4. **Additional assurances on water use efficiency will be provided by facilities construction bond language which prohibits the use of new facilities to convey either project or purchased water for any urban or agricultural agency which is not certified as efficient.**

5. **Assurances for water use efficiency will also be provided by the promulgation by the SWRCB of rules and regulations on water management/water use efficiency as a condition of water rights.** This might also include sanctions or penalties for those water users who were not certified or failed to satisfy implementation criteria.

6. **As an additional assurance to the basic approach of voluntary or conditions based compliance, state legislation will be proposed to make water management planning mandatory for all water suppliers which meet certain criteria.**

F. Levee Stability

1. **DWR will continue to implement the levee programs.**

2. **The Principles Agreement will include a general statement of the need for continued funding for levee maintenance and of support for bonds and state legislation to provide necessary funding, so that the program will not be dependent on the annual appropriation process.**

3. **State legislation will be proposed to provide long term General Obligation bond funding for levee maintenance and repair.**

G. Phasing and Sequencing

Figure 1 shows a possible approach to phasing, linkages, and sequencing. Items within each box must be completed for actions in succeeding boxes could take place. By sequencing the actions in particular ways, assurances can be strengthened and stakeholder groups can be encouraged to maintain support for the process through to the end.

The first box contains legislation, state bonds, and federal appropriations. These are the elements of the solution which will not fall into place without action by outside actors. By placing them first, the risk of disruption during the middle of implementation is reduced. All sides will have strong incentives to support each of these items.

The second box involves the establishment of DERA, new SWRCB standards and water rights (contingent upon completion of facilities), and work on preparing the ground for approval

of permits for facilities. Water users will have incentives to support this phase since the facilities which they want are contingent upon completion of this phase. Water users are not at great risk of losing very much during this phase, however, since they have yet to pay user fees or pay for facilities.

The third box involves the granting of facilities permits, finalization of the HCP and the floating of revenue bonds. Water users have strong to complete this element in order to promote facilities. Environmental stakeholders will have incentives to support this phase since completion of this phase opens the door to user fees for restoration.

The fourth box is the initiation of user fees as described above and the beginning of the limited indemnity against regulatory surprises. Environmental stakeholders will have an incentive to support completion of this phase in order to gain increases in fees for environmental restoration, to avoid loss of existing fees, and to achieve the new standards and rights.

The fifth box is the ushers in the last phase. After this, presumably a stable solution will have been achieved.

H. Funding

1. **Principles agreement**

2. **Specific funding agreements**

3. **State and federal legislation and appropriations**

III. GUIDELINES FOR EVALUATING ASSURANCES PROPOSAL

The Guidelines are to help evaluate individual assurance measures as well as the entire assurances proposal. Several additional guidelines have been added in this draft.

- *Satisfy the solution principles (implementable, durable, affordable, equitable, reduce conflicts, no significant redirected impacts).* The following guidelines represent these solution principles, as applied to the implementation/ assurance package.

- *Provide high confidence that identified actions will be taken and that identified programs will operate as promised.* The Program cannot guarantee performance. Ecosystem function and population targets cannot be assured within a finite budget. Water supply reliability levels cannot be guaranteed given that future precipitation patterns are unknowable. The focus, therefore, is on implementation and operation, not assuring outcomes.

- *The implementation/assurance package should not be used to compensate for perceived problems in the solution itself.* The implementation/assurance package is designed to make sure that actions promised within the CALFED solution occur. It is not a place where the distribution of costs or benefits from the solution can be modified.

- *Ensure that the solution contain clearly articulated performance criteria and proposed schedules for attaining program goals.*

- *Specify that the written description of the solution constitutes the entire agreement.* Parties' unstated assumptions about the implementation of particular components should not be binding.

- *Structure the solution to be self-executing.* The CALFED solution, once implemented, should be minimally dependent upon discretionary actions by actors outside the solution framework. For example:

    - Is legislation needed for implementation?
    - Is needed funding provided from discretionary accounts (e.g., from federal appropriations or from the state general fund)?
    - Do regulatory agencies retain the discretion to unilaterally alter the program constructed by the Program.
    - Can implementation structures be altered or subverted unilaterally by outside actors? For example, could the legislature dissolve a new institutional structure? Could the governor pack an environmental board with water user interests?

    These consideration imply the need either to reduce the discretion of outside actors to unilaterally alter the CALFED solution, or to insulate the Program from the impacts of discretionary actions. For example, funding from discretionary accounts might be made up-front by the state and federal governments, with additional funding coming from entities which the CALFED solution can bind -- e.g., water agencies. Similarly, the ecosystem program might indemnify water users against future ESA listings pursuant to and HCP.

- *Include recovery mechanisms for natural processes.* The solution should contain internal mechanisms capable of responding to physical and biological surprises and disappointments. For example:

    - Is the solution likely to break down during an extended drought?
    - If climate changes leads to new precipitation and runoff patterns, can the system adjust? Or is the solution predicated on the continuance of existing patterns?
    - If new exotic species dramatically alter biological conditions, does the solution contain the flexibility to adjust? Or is the solution predicated on the continuation of existing biological relationships?
    - What happens if the ecosystem fails to respond in desirable ways?

These considerations imply the need for flexibility to allow adjustments in operational and, perhaps, funding patterns over time without the need for a new CALFED type process.

- *Include recovery mechanisms should conflicts arise during implementation.* For example:
  - What if a water agency refuses to pay water fees it has committed?
  - What if an agency misoperates facilities or violates standards?
  - What if the eco entity refuses to pay for compensation water as promised in the agreement?
  - What if the eco program spends large amounts of money on projects of questionable value?

These considerations imply the need for a combination of tools, ranging from legally enforceable requirements to arbitration to assure that the solution will remain on course.

- *Provide for implementation of the entire program, even if that implementation occurs in stages or phases.* The phasing, funding, and institutional structures can be created so as to minimize the risk that various actors will disrupt the solution. The solution should be structured so that the interests of each stakeholder group coincide with full implementation of the CALFED solution.

- *Allow for adaptive management, wherever the current state of knowledge is inadequate to made definitive choices now.*

- *Minimize the risk that implementation of the CALFED solution will cause significant redirected impacts.* For example:
  - Are there controls to assure that the ecosystem entity does not cause damage to rural communities as it purchases land and water for restoration purposes?
  - Are there controls to assure that groundwater levels will not be disrupted by markets?

- *Allow for variations in the need for certainty on discrete program components.* Some parts of the program may need to be "set in stone", whereas in other areas the parties may be willing to agree to a more open-ended or flexible process. This may contradict the adaptive management guideline in some cases.

- *Work within existing statutes, regulations and institutions where feasible.*

- *Promote institutional effectiveness and efficiency.* For example:
  - Are the structures of implementation agencies compatible with their assigned roles? Are agencies which are regulatory in nature being asked to take on managerial roles?
  - Is the voting structure and the division of interests within the ecosystem restoration program such that it will be able to take decisive and timely action on behalf of the environment?

- Is the proposed implementation arrangement such a break from existing institutional approaches that it will create skepticism and resistance?
- Have proposed implementation arrangement been tried and proven, either in California or elsewhere?

- *Provide for public involvement.* Without public support implementation is threatened. Therefore, the public will need to support the CALFED solution, not only at the outset, but over time as implementation proceeds. In order to maximize the likelihood of continued public support, the solution should contain mechanisms for soliciting and responding to public opinion.